

Amendment  
Serial No. 10/754,029

Docket 5000-1-497

**IN THE CLAIMS:**

*Please amend the claims as follows:*

1. (Currently Amended) An optical add/drop multiplexer connected to an optical fiber for transmission of a multiplexed optical signal, comprising:

a wavelength division multiplexing/demultiplexing (WDM) unit connected to the optical fiber having input and output ports providing a path for a multiplexed optical signal, and a plurality of demultiplexing ports respectively providing paths for demultiplexed channels; and

a plurality of add/drop multiplexer (ADM) units respectively connected to the demultiplexing ports of the WDM unit, each of the ADM units including first and second circulators adapted to output a channel, input to a higher-order port, to a lower-order port, and a reflector for passing or reflecting a channel input thereto,

wherein the first circulator receives a channel at a second port, outputs the channel to a third port connected to the reflector, receives the channel from the reflector at the third port, and outputs the channel to a fourth port, thereby dropping the channel, and

wherein the output of the second circulator is coupled to the first circulator for outputting an added channel by passing the added channel back to the demultiplexing port of the WDM unit via the first circulator.

2. (Original) The optical add/drop multiplexer according to claim 1, wherein the WDM unit comprises:

an end circulator having first through third ports and adapted to output an optical signal, input to a higher-order port, to a lower-order port, the first and third ports of the

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end circulator connected to the optical fiber for transmission of the multiplexed optical signal; and

a wavelength division multiplexer/demultiplexer (WDM) having a multiplexing port connected to the second port of the end circulator and providing a path for a multiplexed optical signal, and a plurality of demultiplexing ports respectively providing paths for demultiplexed channels.

3. (Original) The optical add/drop multiplexer according to claim 2, wherein the WDM comprises an arrayed waveguide grating.

4. (Currently Amended) An optical add/drop multiplexer connected to an optical fiber for transmission of a multiplexed optical signal, comprising:

a wavelength division multiplexing/demultiplexing (WDM) unit connected to the optical fiber having input and output ports providing a path for a multiplexed optical signal, and a plurality of demultiplexing ports respectively providing paths for demultiplexed channels; and

a plurality of add/drop multiplexer (ADM) units respectively connected to the demultiplexing ports of the WDM unit, each of the ADM units including first and second circulators adapted to output a channel, input to a higher-order port, to a lower-order port, and a reflector for passing or reflecting a channel input thereto,

wherein the second circulator is coupled to the first circulator and receives a channel at a first port, outputs the channel to a second port connected to the reflector, receives the channel from the reflector at the second port, and outputs the channel to a third port connected to a first port of the first circulator, thereby adding the channel- by passing the added channel -back to the demultiplexing port of the WDM unit via the first circulator.

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5. (Original) The optical add/drop multiplexer according to claim 4, wherein the WDM unit comprises:

an end circulator having first through third ports and adapted to output an optical signal, input to a higher-order port, to a lower-order port, the first and third ports of the end circulator connected to the optical fiber for transmission of the multiplexed optical signal; and

a wavelength division multiplexer/demultiplexer (WDM) having a multiplexing port connected to the second port of the end circulator and providing a path for a multiplexed optical signal, and a plurality of demultiplexing ports respectively providing paths for demultiplexed channels.

6. (Original) The optical add/drop multiplexer according to claim 5, wherein the WDM comprises an arrayed waveguide grating.

7. (Currently Amended) An optical add/drop multiplexer connected to an optical fiber for transmission of a multiplexed optical signal, comprising:

a wavelength division multiplexing/demultiplexing (WDM) unit connected to the optical fiber having input and output ports providing a path for a multiplexed optical signal, and a plurality of demultiplexing ports respectively providing paths for demultiplexed channels; and

a plurality of add/drop multiplexer (ADM) units respectively connected to the demultiplexing ports of the WDM unit, each of the ADM units including first and second circulators adapted to output a channel, input to a higher-order port, to a lower-order port, and a reflector for passing or reflecting a channel input thereto,

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wherein a channel passing through the ADM unit sequentially passes through the second and third ports of the first circulator, the reflector, the second and third ports of the second circulator, and the first and second ports of the first circulator and

wherein the output of the second circulator is coupled to the first circulator for outputting an added channel by passing the added channel back to the demultiplexing port of the WDM unit via the first circulator.

8. (Original) The optical add/drop multiplexer according to claim 7, wherein the WDM unit comprises:

an end circulator having first through third ports and adapted to output an optical signal, input to a higher-order port, to a lower-order port, the first and third ports of the end circulator connected to the optical fiber for transmission of the multiplexed optical signal; and

a wavelength division multiplexer/demultiplexer (WDM) having a multiplexing port connected to the second port of the end circulator and providing a path for a multiplexed optical signal, and a plurality of demultiplexing ports respectively providing paths for demultiplexed channels.

9. (Original) The optical add/drop multiplexer according to claim 8, wherein the WDM comprises an arrayed waveguide grating.

10. (Original) An optical add/drop multiplexer connected to an optical fiber for transmission of a multiplexed optical signal, comprising:

a wavelength division multiplexing/demultiplexing (WDM) unit connected to the optical fiber having input and output ports providing a path for a multiplexed optical

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signal, and a plurality of demultiplexing ports respectively providing paths for demultiplexed channels; and

a plurality of add/drop multiplexer (ADM) units respectively connected to the demultiplexing ports of the WDM unit, each of the ADM units including a circulator adapted to output a channel, input to a higher-order port, to a lower-order port, and a reflector connected between two ports of the circulator, and adapted to pass or reflect a channel input thereto,

wherein the circulator receives a channel at a second port, outputs the channel to a third port connected to the reflector, receives the channel from the reflector at the third port, and outputs the channel to a fourth port thereof, thereby dropping the channel,

11. (Original) The optical add/drop multiplexer according to claim 10, wherein the WDM unit comprises:

an end circulator having first through third ports and adapted to output an optical signal, input to a higher-order port, to a lower-order port, the first and third ports of the end circulator connected to the optical fiber for transmission of the multiplexed optical signal; and

a wavelength division multiplexer/demultiplexer (WDM) having a multiplexing port connected to the second port of the end circulator and providing a path for a multiplexed optical signal, and a plurality of demultiplexing ports respectively providing paths for demultiplexed channels.

12. (Original) The optical add/drop multiplexer according to claim 11, wherein the WDM comprises an arrayed waveguide grating.

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13. (Original) An optical add/drop multiplexer connected to an optical fiber for transmission of a multiplexed optical signal, comprising:

a wavelength division multiplexing/demultiplexing (WDM) unit connected to the optical fiber having input and output ports providing a path for a multiplexed optical signal, and a plurality of demultiplexing ports respectively providing paths for demultiplexed channels; and

a plurality of add/drop multiplexer (ADM) units respectively connected to the demultiplexing ports of the WDM unit, each of the ADM units including a circulator adapted to output a channel, input to a higher-order port, to a lower-order port, and a reflector connected between two ports of the circulator, and adapted to pass or reflect a channel input thereto,

wherein the circulator also receives a channel at a fifth port, outputs the channel to a first port connected to the reflector, and receives the channel from the reflector at the first port, thereby adding the channel.

14. (Original) The optical add/drop multiplexer according to claim 13, wherein the WDM unit comprises:

an end circulator having first through third ports and adapted to output an optical signal, input to a higher-order port, to a lower-order port, the first and third ports of the end circulator connected to the optical fiber for transmission of the multiplexed optical signal; and

a wavelength division multiplexer/demultiplexer (WDM) having a multiplexing port connected to the second port of the end circulator and providing a path for a multiplexed optical signal, and a plurality of demultiplexing ports respectively providing paths for demultiplexed channels.

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15. (Original) The optical add/drop multiplexer according to claim 14, wherein the WDM comprises an arrayed waveguide grating.

16. (Original) An optical add/drop multiplexer connected to an optical fiber for transmission of a multiplexed optical signal, comprising:

a wavelength division multiplexing/demultiplexing (WDM) unit connected to the optical fiber having input and output ports providing a path for a multiplexed optical signal, and a plurality of demultiplexing ports respectively providing paths for demultiplexed channels; and

a plurality of add/drop multiplexer (ADM) units respectively connected to the demultiplexing ports of the WDM unit, each of the ADM units including a circulator adapted to output a channel, input to a higher-order port, to a lower-order port, and a reflector connected between two ports of the circulator, and adapted to pass or reflect a channel input thereto,

wherein a channel passing through the ADM unit sequentially passes through the second and third ports of the circulator, the reflector, and the first and second ports of the circulator.

17. (Original) The optical add/drop multiplexer according to claim 16, wherein the WDM unit comprises:

an end circulator having first through third ports and adapted to output an optical signal, input to a higher-order port, to a lower-order port, the first and third ports of the end circulator connected to the optical fiber for transmission of the multiplexed optical signal; and

a wavelength division multiplexer/demultiplexer (WDM) having a multiplexing port connected to the second port of the end circulator and providing a path for a

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multiplexed optical signal, and a plurality of demultiplexing ports respectively providing paths for demultiplexed channels.

18. (Original) The optical add/drop multiplexer according to claim 17, wherein the WDM comprises an arrayed waveguide grating.